DOCUMENT RESUME

ED 178 076 IR 007 819

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TITLE Telecommunication Development in the Federal Republic of Germany. The "Telecommunications Report": Findings, Recommendations and Response.
INSTITUTION Council of Europe, Strasbourg (France). Committee for Out-of-School Education and Cultural Development.
PUB DATE 10 Nov 76
NOTE 48p.

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Cost Effectiveness; *Developed Nations; Futures (of Society); *Needs Assessment; *Program Planning; Technological Advancement; *Telecommunication
IDENTIFIERS *West Germany

ABSTRACT

This study elaborates on 56 findings and 17 recommendations made in an earlier report about telecommunications by a commission originated by the German Federal Minister for Research and Technology. The commission investigated (1) the needs and demand for telecommunications; (2) technical possibilities, required volume of investment and costs of telecommunications; and (3) organization and general terms and conditions of telecommunications. The main outcome of the report was a more accurate knowledge of the technical premises of and interdependencies between the various new forms of telecommunication. In addition, the associated details of needs and the cost estimates made possible a more realistic prognosis of the time scale for the introduction of the corresponding systems. In this discussion of the work of the commission, the views of the Federation and of the States, of political parties, churches and trade unions, industry, advertising, and of the publishers are all considered to identify the complexity of the problems involved. The document canvasses for understanding of the necessity and the difficulty of obtaining a consensus regarding future policy. (Author/JEG)

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Strasbourg 10 November 1976 CCC/DC (76) 83

TELECOMMUNICATION DEVELOPMENT IN THE FEDERAL REPUBLIC OF GERMANY

The "Telecommunications report": Findings, recommendations and response

by Manfred JENKE

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FOREWORD

This study is one of a series dealing with different experiences of new techniques being used in European audiovision, and also on the audio-visual situation in general in some member states. It is part of the preparatory documentation for a colloquy on videography, radio and cable television scheduled in principle for May 1977. The following research, available during the first three months on 1977, deals specifically with the situation in Austria, Italy and United Kingdom.

November 1976

The present study is commissioned by the Council of Europe in the framework of the Cultural Programme established by the Council for Cultural Co-operation. The statements made in this study are the responsibility of the author and do not necessarily reflect the views or policies of the Council of Europe or of its member governments.

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- of newspapers
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Summary

This present study deals with the report, published on 27 January 1976, of the "Kommission für den Ausbau des technischen Kommunikationssystems" (1) (KtK). That Commission had been set up in February 1974 by the German Federal Minister for Research and Technology and for Posts and Telecommunications, Prof. Horst Ehmke, for the purpose of answering the following questions:

1. For which forms of communication is there a social, political and economic need?

2. What possibilities for new forms of communication are opened up by the present trend in technical development - broadband technique in particular?

3. In what period of time is the further development of the telecommunication system to be brought about and how is it to be financed?

4. Who is to plan, establish and operate the various technical installations of the future telecommunication system and under what general terms and conditions?

The Commission investigated in the main three wide specialist areas, that is to say:

- the needs and demand for telecommunications
- technical possibilities, required volume of investment and costs of telecommunications,
- organisation and general terms and conditions of telecommunication systems.

To that end, it published in its report a total of 56 findings and 17 recommendations, which are discussed individually in the present study, insofar as they refer to questions of the mass media in the wider sense.

The main outcome of the KtK report is a more accurate knowledge of the technical premises of and interdependencies between the various new forms of telecommunication. In addition, the associated details of needs and the cost estimates make possible a more realistic prognosis of the time-scale for the introduction of the corresponding systems.

The KtK report is noteworthy also as the product of a democratic fact-finding process which brought the different interested parties together over a period of nearly two years and arrived in that way

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(1) Commission for the Development of the Telecommunication System.

at a consensus as to what it was possible to do, what it was necessary to do and what it appeared desirable to do. Special importance must be attached to the work of the KtK, beyond the narrower specialist field of telecommunication, in that certain regulating conceptions in the field of mass communication can be formed, which field must be kept free from influence by the state, without requiring the guiding influence of the state.

This present study endeavours to discuss that process and that effect of the work of the KtK by allocating much space to a description of the reaction to the achievements of the KtK. The study cites the views of the Federation and of the States, of the political parties, churches and trade-unions, as well as those of industry, advertising and of the publishers, in order to make clear the complexity of the field of problems in which the KtK had to work. This present study seeks in this way to canvass for understanding for the necessity, and also for the difficulty, of obtaining within the Federal Republic of Germany - as on the European-level - a consensus regarding future communication policy.

TELECOMMUNICATION DEVELOPMENT IN THE FEDERAL REPUBLIC OF GERMANY

The "Telecommunications report": Findings recommendations and response

By Manfred Jenke

1. A policy is needed

1.1. Public controversy until 1973

Unlike most other West-European nations, the Federal Republic of Germany is, according to its Constitution (the "Basic Law" of 23 May, 1949), a Federated State, wherein the federal institutions in Bonn have competence for posts and telecommunications, whereas the eleven federal states (including West Berlin), on the other hand, are individually competent for the administration of sound and television broadcasting. It results therefrom that, in West Germany, the sound and television broadcasting services are in the main provided by public organisations whose legal foundations are the legislation of the individual states or agreements between federal states. (Only two broadcasting organisations, the "Deutsche Welle" and the "Deutschlandfunk", both of which broadcast mainly for abroad, are constituted on the basis of federal legislation.)

This legal situation is not uncontested. Repeated attempts have been made in the past

- to circumvent or to undermine the competence of the individual federal states in the matter of broadcasting, in favour of the central federal government,

- to compromise the public character of broadcasting by admitting private broadcasting services alongside the existing public broadcasting organisations.

The most striking enterprise of that kind was the formation, on 25 July 1960 by Dr. Konrad Adenauer, the then Federal Chancellor, of the "Deutschland-Fernsehen-GmbH", a company whose purpose was to complement the First Television Programme, which was being provided jointly by the state broadcasting organisations, by a Second Television Programme much influenced by the then federal government and the economic circles close to it. The federal states of Hamburg, Hessen, Niedersachsen and Bremen thereupon brought a legal action against the federal government before the Federal Constitutional Court at Karlsruhe, which ruled on 28 February 1961 that the federal government had acted ultra vires, because

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- the postal and telecommunications service embraced - disregarding the reception of broadcast transmissions - only the transmission engineering domain of broadcasting, and not the so-called studio operations,

- the federal institutions were not competent to interfere with the organisation of the production of broadcast programmes.

That legal controversy determined before the Federal Constitutional Court was, of course, based not only on a constitutional-political conflict between the Federation and the states, but also on a broadcasting-political difference of opinion between the Christian-Democratic Federal Government in Bonn and the Social democratic state governments of Hamburg, Hessen, Niedersachsen and Bremen. However, during the course of the years that followed, during which the proportions of political majority gradually changed in the Federation as well as in some of the states, it became clear that, in all political camps, the realisation was growing up that such complex, many-sided problems could not be solved satisfactorily by the unilateral creation of faits-accomplis and subsequent legal battles, but that public discussions and doctrinal statements by the relevant authorities and groups in politics and society were necessary. This led, in the middle 1960s, to the realisation of the need for a comprehensive policy for the media, which was to serve the following purposes:

- the protection of existing media (such as the press and the film industry) against possible damage by the extension of television,

- the safeguarding of the wider proliferation of information and opinion vis-à-vis the formation of monopolies within the printed as well as the electronic media,

- the appropriate organisation of additional new media (audiovision, cable distribution).

However, the various attempts at formulating media-political programmes in no way encountered only agreement. Prominent journalists, influential publishers and distinguished politicians expressed criticism or even disapproval in the sense that "the best media policy was none", and there was not a little scepticism regarding the possible leading of the media by the state and the increasing influence of the political parties over the media - an attitude which was quite understandable in view of historical experience with the "authority".

At the same time, influential economic circles considered that the time would soon be ripe to examine the telecommunication and broadcasting services in the Federal Republic, the majority of which were financed out of licence fees, in order to determine

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whether it would be possible to find sectors that could be opened up to lucrative private exploitation. The following possibilities suggested themselves for that purpose:

- the introduction of additional sound and television programmes which would no longer be financed by subscribers' fees, but financed entirely by revenue from publicity,

- the transfer to the private sector of certain profitable operational branches of the Federal Post Office, such as the telephone, data-transmission and teleprinter services.

Public discussion in the matter of media policy (and, it must be admitted, also the confusion on the subject) was considerable at the end of the 1960s, but it did little to advance the matter. Since 1964, several commissions had examined important aspects such as:

- the "Kommission zur Untersuchung der Wettbewerbsgleichheit von Presse, Funk/Fernsehen und Film"(1),

- the "Kommission zur Untersuchung der Gefährdung der wirtschaftlichen Existenz von Presseunternehmen und der Folgen der Konzentration für die Meinungsfreiheit in der Bundesrepublik"(2), set up on 18 May 1967 by the Federal Ministers for the Interior and for Commerce.

However, as before, there was still no comprehensive stock-taking of the organisational problems in the technical, economic, sociological, publicity and juridical fields, which would be relevant for the future developments in the field of telecommunication.

1.2. The "Commission for the Development of the Telecommunication System" (1973-76)

In the beginning of 1973, when a new federal government was formed from the German Social-Democratic Party (SPD) and the Free Democratic Party (FDP), the then Federal Chancellor Willy Brandt said in his policy statement of 18 January 1973: "Innovations in the field of information processing and communications are having an increasing influence not only on technical and economic development, but also on the social life of the people. In co-operation with the federal states and with scientists and economists, the federal government will work out its proposals for the further development of the telecommunication system. An important role in the development of communication technology will be played by the German Federal Post Office."

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(1) Commission for investigating the equality of competition of the press, broadcasting and cinema

(2) Commission for investigating the danger to economic existence of the press and the effects of concentration on the freedom of opinion in the Federal Republic.

That statement was implemented by the creation on 2 November 1973 by the federal government of the "Kommission für den Ausbau des technischen Kommunikationssystems"(1)(KtK) whose mandate required it to submit by the end of 1975 proposals for the development of the technical telecommunication system. Those proposals were to define an

- economically rational and
- socially desirable

future system to contribute to the solution of the following questions:

- For which forms of communication is there a social, political and economic need?
- What possibilities for new forms of communication are opened up by the present trend in technical development (broadband technique in particular)?
- What are the costs for the development and implementation of new forms of communication?
- In what period of time is the further development of the telecommunication system to be brought about and how is it to be financed?
- Who is to plan, establish and operate the various technical installations of the future telecommunication system and under what general terms and conditions?

The Commission was initially made up of the following members:

- five representatives of the different sciences (among them the Chairman, Prof. Eberhard Witte, who had been appointed by the Federal Ministry for Posts and Telecommunications),
- four representatives of the political parties represented in the Federal German Diet (CDU, CSU, FDP and SPD),
- one representative of the municipal authorities,
- two representatives of the main associations of manufacturers,
- two representatives of the trade unions,
- two representatives of the manufacturers of telecommunication equipment,
- two representatives of the broadcasting organisations,
- one representative each of the publishers and journalists, together with, later,
- two representatives of the federal states.

(1) Commission for the Development of the Telecommunication System.

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After its constituting meeting on 27 February 1974, the Commission set up four working parties to deal with the following matters:

- "Needs and demand for telecommunications"
  Chairman: Prof. Dr. Hans Bausch
  Deputy: Prof. Dr. Wolfgang Langenbucher

- "Technical possibilities, required volume of investment and costs of telecommunications"
  Chairman: Prof. Dr. Ing. Wolfgang Kaiser
  Deputy: Dipl.-Phys. Dieter von Sanden

- "Organisation and general terms and conditions of telecommunication systems"
  Chairman: Prof. Dr. Eberhard Witte
  Deputy: Prof. Dr. Peter Lerche

- "Possibilities of financing telecommunication networks"
  Chairman: Prof. Dr. Karl F. Hagenmüller
  Deputy: Manfred Jenke.

The Commission and the working parties met on 107 days, on seventeen days in plenary session; the working parties met on 45 days and the sub-groups of 50 days. The Commission was assisted in its investigations and in establishing its report by a working party consisting of members from the different federal ministries. It placed research contracts with various scientific institutes for investigations which are included in the bibliography of the present report. The final "Telecommunication report" of the KtK consists of nine volumes having a total of 1340 printed pages.

2. Findings and recommendations

At the outset, the work of the Commission was unavoidably overshadowed by misunderstandings and also by a certain amount of mistrust. Some of the interested parties feared that their rights, or their political or even economic positions would be prejudiced by a Commission set up by the federal government, and among whose members was a large proportion of specialists. Reservations were expressed at first not only by the Federal states, but also by the publishers, who set up their own association in parallel with the KtK, in order critically to observe the work of the Commission. However, the Chairman of the KtK, Prof. Witte, was very soon able to create, both in the Commission and in the working parties, an atmosphere of confidence and co-operation, so that it was possible, in this process of determination and recommendation, which was up to then unique for the Federal Republic of Germany in the field of communication engineering, effectively to establish an appreciable number of hitherto unknown facts and their implications and to present them

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for the formation of public opinion. One may regard as a politically significant event the fact that, in a field which previously had been characterised - in Germany, at least - by the secret cabinet policy of the governments and an enforcement corresponding to economic usage of economic partial interests, it was nevertheless now found possible to introduce an additional factor into the formation of political opinion and motivation: namely, the question of the social desirability of the new technologies. It is evident that not everything which is technically feasible must necessarily be socially desirable, even if the capital required for financing it can be made available. The Commission was extremely reserved in its findings and recommendations regarding all political questions, but the fact alone that certain alternative decisions were clearly brought out is contributory, in that the shape of the future development of telecommunication in West Germany will not be determined only by the technico-economic factors, but that, in addition, there is also a definite demand regarding its social and journalistic consequences.

The Commission, in its report, most certainly appreciated the fact that technical progress plays a considerable part as a means for stabilising economic growth and social prosperity. On the other hand, however, it also pointed out that economic commonsense demands that the limited possibilities of economic growth be utilised where there already exist individual and common needs that have not been satisfied, instead of artificially stimulating new needs.

In its report, the KtK makes mention of a number of far-reaching questions, without, however, being able to answer them: Inquiries must be made as to whether a person would be prepared to have the awkward conveyance of persons and goods replaced to a large extent by the transportation of information and, for instance, whether he would be prepared to carry on a dialogue by means of telecommunications instead of making a journey, or to place orders by picture retrieval instead of going shopping. Would it lead to introversion or to isolation if man were to meet his requirements as regards culture, consumption, the solution of problems and entertainment quite alone - unsocially? Ergonomic problems concerning the relationship man-machine are also to be noted. Although the user has grown accustomed in the last few decades to hitherto unknown media and forms of communication which technology has made possible, the question remains as to whether he is or wants to become a "homo informaticus" within the meaning of the new technical advances.

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The socio-political aspect, too, has to be taken into account. It becomes all the more obvious when the influence of the level of income, of regional strata and of age structure on the share in the use of telecommunications is taken into consideration. Will new communication systems lead to a smoothing out of informational privileges or will they create new ones? Will new learning processes accompanying one throughout life, which today still meet with considerable opposition, become possible? The use of dialogue in educational and health services could exercise a great amount of influence on socio-political development. Not to be overlooked are the problems of the safekeeping of data and the protection of privacy from the penetration of all too easily accessible telecommunication techniques. Finally, mention must be made of the social and political effect of the return channel in cable television systems. Here, the question is posed of whether new plebiscitary elements will become part of representative parliamentary democracy in view of the constant feedback process whereby the television viewer is enabled to voice his opinion.

With regard to the mass media as a whole, the question (which has not been answered by the KtK) arises as to whether the possibility of the distribution over cables of additional sound and television programmes, and, beyond this, the transmission of facsimile data, texts and pictures, might lead to an impairment of the sale of newspapers, periodicals and books and, thus, become a danger for the existence of the traditional printed media. The KtK has not proposed any possible solutions, although, alternatively, the following can be imagined:

- restricted measures regarding the distribution by cable of material hitherto distributed in print in newspapers, periodicals and books,

- compensatory measures in favour of the producers of printed material, insofar as this is also distributed over cables,

- direct access of the producers of printed material to the carrier organisations or the utilisation of the new system.

The Commission merely states: However, uncontrolled growth is to be avoided and consequently attempts must be made to find a uniform, compatible plan of development. In such a case, particular significance is attached to the problems of interface between public infrastructure and private use.

2.1. Existing forms of telecommunication

The Commission used, as the basis for the individual determinations and recommendations, the differentiation that the forms of telecommunication at present working in the Federal Republic of Germany can be grouped into two - quite distinct - categories:

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Switched telecommunication. It comprises the main telephone, telex and data communication. A two-way communication is established between two participants (individual communication). The communication network has the hierarchically structured form of a star and excludes all other possible participants from the connection set up between two communication stations (secrecy of telecommunications). The arrangement of the contents is up to the participants.

Distributed telecommunication. A central station offers communication contents to all authorised participants at the same time (mass communication). The network has a distribution structure (unidirectional supply system). The participant can exert influence on the communication content only insofar as he has the possibility of choosing between the various channels and of doing completely without the programme. Distributed telecommunication, as it is today, comprises the broadcasting service with its variants, sound-only broadcasting and television broadcasting.

Because this present study deals in the main with matters of wired television, the findings and recommendations of the KtK regarding other forms of telecommunication can be reproduced here only in their essential outlines, without details.

Not a few readers of the report of the Commission showed their astonishment and sometimes disappointment - in view of earlier euphoric forecasts of future broadband communication - with the introductory statement: Telephone will continue to be the most important form of telecommunication in the future. For the transmission of language, data, text and still frames, the telephone network provides by greater and extended use a considerable potential for innovation. The report admits that, in comparison to other industrialised countries, the telephone service in the Federal Republic of Germany, though technically on a high level, has so far only reached a low degree of coverage, the charges being comparatively high. As there obviously exists an as yet unsatisfied demand for telephone stations in private households and in view of the fact that meeting the demand for such stations and services seems economically reasonable and socially desirable, it is recommended that priority be given to the accelerated and continuous further development of the telephone network with the aim of full coverage of all households.

The KtK felt that there was room for development in the telex service as well. Further development is considered worthwhile in view of international standardisation and subscriber-dialled traffic which makes it possible to reach people in all parts of the world. Meeting the demand for telex stations and telex services is economically sound and socially neutral. So the recommendation is made to extend the telex service according to demand and to develop further the telex network in such a way that new forms of rapid text exchange, to be standardised internationally, can be handled with this network.

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Another recommendation, in the field of existing forms of telecommunication, relates to data communication. Here the KtK states that demands are increasing but can be met by the characteristics of the public telex and data network. Strongly recommended is the standardisation of terminal equipment by which it is expected, on the one hand, to bring about the necessary norms for the transmission of two-way communications but, on the other hand, to permit the greatest possible amount of scope as regards the technological and functional construction of the data terminal equipment itself to enable it also to work side by side with data-processing equipment. Meeting the demand for data communication is regarded as particularly necessary for the economy and for administration; there would be social benefits involved.

Another service which was given closer attention by the KtK is the mobile radio service, known as Eurosignal. It is expected that at the ultimate stage of capacity, some 100,000 to 200,000 units will be operated in the 87-MHz frequency band. It is obvious that this service will be able to reach a maximum of subscribers with a minimum of demands in cost and frequency band, whereas the radiotelephone service needs a considerably larger portion of the frequency band and more expensive technical equipment. One radio channel can accommodate approximately 40,000 subscribers of the mobile radio service (Eurosignal), but only 100 subscribers of a radiotelephone service. By now there are about 8,000 mobile telephone subscribers in the Federal Republic of Germany, but this figure is expected to grow rapidly during the next decade. The KtK estimates for the near future that:

Networks A (160MHz) and B (148 or 153 MHz) could serve up to 25,000 subscribers, and

Network C (460 MHz) would serve another 25,000.

It is recommended to aim at a standardisation throughout Europe for the public land mobile radio service and to promote with increased intensity its further development.

In the field of broadcasting (sound and television), it is proposed to continue to strive for full coverage of the population at least with the programmes currently offered by the ARD and ADF, ie the programmes which are envisaged by the broadcasting laws and treaties of the states for their respective areas of coverage. If radio coverage is out of the question or uneconomic, there is the possibility of wired distribution.

2.2. New forms of telecommunication with existing networks

As existing networks are not working to capacity during a considerable number of hours of the day and in particular not at night, the KtK felt that, by the introduction of new forms of telecommunication, thus using the capacity more favourably, additional

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facilities were to be expected at relatively low cost. If, moreover, the physical transportation of communication carriers (in particular, letters) can be partially replaced owing to the use of additional capacity, further positive results would be achieved with regard to the economic input of manpower and energy.

One of these new forms, the telecommunication typewriter service, is feasible with the existing telecommunication network and is characterised by new terminal equipment which serves both the typing and the transmission of texts by means of the full character set of a typewriter. Extra costs and cost savings of such a service would balance each other out if there existed 150,000 subscribers and if about 6 pages were typed out and transmitted by each subscriber per working day. It seemed to the KtK that a demand for this service was to be found already today in business and administration, and that the introduction was to be recommended.

Another recommendation was made as to the introduction of facsimile transmission. The demand is evident in business and administrative offices and institutions. If it were possible considerably to reduce investments and costs of facsimile transmission, there would also be a demand for facsimile transmission of handwritten letters in private households. The KtK noted, however, that a specially high demand would be expected from countries with graphic characters (eg Japan), and that private demand in Europe will be limited during the near future. The same applies to electronic mail transmission (whichever system might be applied one day). For the time being, it cannot be assumed that private households will purchase the relatively expensive terminals for the telecommunication typewriter service and facsimile transmission. There may merely be a first step of innovation in transmitting letter contents electronically from one post office to another. In a second step, it can be assumed that some households would already have a terminal available, so that dispatch or receipt could be handled via telecommunications. The most important innovation step comes about when input equipment with public access (electronic letter boxes) is installed. All this still requires intensive research until the day when a partial substitution of electronic mail for conventional mail will be possible. The KtK takes a rather sceptical view of the facsimile newspaper. This is regarded as a technically possible, legally admissible new form of telecommunication which, however, cannot be implemented efficiently in the foreseeable future. Distribution would be effected either via the video broadcasting network or via the telephone network. However, it has to be considered that the telephone network is structured for individual traffic between subscribers, and the radial connection of many subscribers to a central station is not possible without further measures. Furthermore, terminals for facsimile transmission of newspaper

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pages are relatively expensive. Special high-cost paper, too, is required. More favourable is the KtK statement on Videotext (the German version of system such as Ceefax, Oracle, etc) which is regarded as a new form of telecommunication to be achieved technically with existing networks and at comparatively low cost. It is estimated that the total expenditure for a videotext centre and the editing staff at the federal level would amount to approximately 10,000,000 DM per year. For 500,000 subscribers (about 2.5% of television households in West Germany), this would mean monthly extra costs of about DM 1.70 per subscriber.

By connecting the dial-telephone network to the television sets in all households, new forms of telecommunications may emerge from existing networks. Their information contents may consist of texts, data and still frames. The subscriber has the possibility of having the information that he requests transmitted to him from a variety of information offered by individual retrieval. This can be operated by slow-scan television via the broadcasting network (sound and/or television) or via the public telephone network. These services, known as Videotext, Viewdata, TV phone, should, according to the KtK, work on a uniform standard in order to be able partially to use the additional components on a joint basis. According to the international expectations communicated to the KtK, a considerable demand for text, data and video library services will develop, so that the introduction of these forms is to be seriously considered.

Up to the 1950s, the Federal Post Office offered a special service for the establishment of multiple calls. Due to insufficient demand, this service was discontinued with the advancing development of subscriber trunk dialling. But as the communication possibility of a tele-conference is a frequent topic of public discussion, the implementation of the telephone conference service has to be considered. Facsimile transmission and slow-scan television via the public telephone network might be used in addition.

2.3. Forms of telecommunication with broadband distribution networks

The fundamental distinction between switched telecommunication and distributed telecommunication, such as is explained in para. 2.1. above for the existing forms of telecommunication, is, according to the report of the KtK, valid also for any future forms that result from the utilisation of broadband communication. With distributed forms of telecommunication, in the nature of things, sound and television broadcasting are in the foreground, with the switched forms (about whose future the judgment of the KtK report is somewhat reserved), individual services of a kind determined by telecommunication law are more apparent.

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It is expected by the KtK that, even without additional impetus from communication policy, the number of communal aerial systems for the reception of audio and videc programmes will further increase. These systems require the standardisation of the cable network and the terminals, thus leaving open the possibility of future integration into supranational cable networks. The KtK expects that such systems - in addition to the broadcast programmes which are usually received locally - will also carry

- programmes which cannot normally be received by radio in any given place,
- additional programmes (ie local programmes),
- subscription television, pay-television,
- other services.

The KtK pointed out that a cable television network having a branching structure (distribution system) cannot subsequently be converted to a star-shaped network (switching system) making possible a dialogue between individual subscribers. If bilateral telecommunication over broadband distribution systems is possible at all, it always originates or terminates in the centre. The KtK states that broadband distribution networks with a narrow-band return channel (by telephone line) indeed

- permit the distribution of information,
- the retrieval of information,
- the collection of information, and
- a limited dialogue between the subscriber and the centre.

The communication activity of the user of such a system would, however, be limited to the transmission of sound, text and data signals. This could include information from libraries, video and data banks. The system might be used to serve government in close co-operation with the public, emergency service and accident reporting service, as well as decentralised participation in processes for the development of objectives. The service is to be understood as a communicative interplay of questions and answers. Examples of this form of use of broadband distribution networks are:

- information services,
- interactive teaching,
- medical advice, and
- reservations and orders.

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Limitations, however, are given by the following facts:

- the capacity is very limited, for the number of subscribers, who can communicate with the centre will be determined by the number of channels available at the time;

- unless special arrangements are made, practically all other subscribers would participate passively in the dialogue (because they can watch it).

On the other hand, these limitations would permit the introduction of subscription-television already in the near future, and although there are only a few and very brief remarks on this subject in the KtK report, opinion is widespread among interested business groups in West Germany that pay-television will eventually become an alternative to the existing public and sound and television broadcasting systems.

This leads to the question of investment requirements. The KtK states that the establishment of a broadband distribution network without a return channel will cost:

- DM 9000 million if all communities with a population of over 33,000 (degree of penetration: 53%) are included,

- DM 14,000 million if all communities with a population of over 10,000 (degree of penetration: 74%) are included, and

- DM 22,000 million if all communities (with the exception of remote isolated buildings) are fully covered.

About DM 3,000 million must be added to this for long-distance and regional networks.

Depending on the size of the community, the investment required per subscriber varies between approx. DM 650 in large towns and DM 1,650 in small communities, which would make it an average of DM 1,000. The operation costs of a broadband distribution network without a return channel would be estimated at DM 200 per year and per subscriber. The volume of additional investment required for the individual narrow-band return channel, the necessary equipment in the cable-television centre and the additional equipment required by the subscriber is estimated at DM 2,000 to 3,000 per terminal, if simple equipment is used. All these calculations are based on 1974 prices.

If one reads the KtK report at this point with particular attention, one will see that the consideration here has been stated with great reserve, even with scepticism at times. This applies in the first place to the following three groups of questions:

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- the introduction and exploitation of satellites,

- the possibilities of the return channel, and

- the public demand for additional broadcasting programmes (sound and television).

As regards the satellites, the KtK states: it is technically possible to cover the area of the Federal Republic of Germany with four additional television programmes by using television broadcasting satellites. The initial investment required for the satellite system amounts to about DM 800 million; to this, investments of DM 15,000 million to DM 25,000 for the receiving investment must be added, both in the case of individual reception and full coverage. The KtK points out that satellite broadcasts will suffer from the following disadvantages:

- a return channel is not feasible,

- satellites are not suitable for the distribution of local and regional programmes

- difficulties might arise from the political implications of spillover from West to East Germany,

- existing terrestrial networks would not be substituted.

The KtK consequently states that broadcasting satellites are not a substitute for, but a complement to broadband cable systems.

A comparable critical attitude is upheld by the KtK also vis-à-vis the question as to whether one day the reception by radio of sound and television programmes will ever be replaced, on a larger scale, by reception by cable: it should be noted that, insofar as the demand for connection of receivers to cable systems is concerned, about 75% of the radio sets produced in 1973, 50% of the monochrome television receivers and an increasing percentage of the colour receivers are portable. This type of broadcast receivers cannot dispense with the radio distribution of programmes. From the point of view of communication policy and from the social and economic considerations, it does not appear to be justified to put listeners and viewers who are not connected to cable networks at a disadvantage - less so as they will have to do without the greater variety of programmes offered by the cable television systems.

The KtK rightly points out that, for transmitting additional programmes directed to specific target groups and relating to given contents to the public, there are also other media, apart from those involving radio and wired distribution: This relates to the distribution of video-discs, video-cassettes and films.

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Audiovisual storage permits a more specific coverage of particularly interested groups of persons. Whereas programmes destined for particular groups can be transmitted over cable or radio broadband distribution networks only to a limited extent, a greater variety and a more specific coverage is possible here - comparable to the book and record market. The consumer is free to choose what he wants to buy or hire.

On the whole, it is expected by the KtK that, for the time being, the audiovision market will grow slowly. It cannot be precluded, however, that in the future audiovision will enter into competition with the supply of broadband information contents by telecommunication means, with a view to replacing it. Audiovisually stored programmes are particularly suited for information which is destined for specific groups and can be stored (disc, tape) and distributed (hiring, parcel post) in the conventional manner.

Not least because of the unclear conditions for competition between sound and television broadcasting, on the one hand, and the audiovisual storage media, on the other hand, the KtK expressed itself with great caution on the controversial matter - discussed in the Federal Republic of Germany for a long time - of the need for additional sound and television programmes. In any case, most German listeners and viewers can receive between four and eight sound broadcast programmes and at least three television programmes. There thus already exists a remarkable choice and at the same time an evident competition between the programmes. However, that competition is restricted to public organisations as carriers, and a not unimportant number of critics of the present public broadcasting service sees in the admission of private carriers as competitors at least a livening up of the media market, if not an improvement of the quality of the programmes offered. This is disputed by the public organisations and the specialist writers and communication scientists intimately concerned. They point out that a competition, orientated to commercial categories, between a public and a private carrier will, as experience has shown, place the public carrier before the alternative of either making cuts in the level of the artistic and journalistic quality of his programmes, or of accepting losses of listeners and viewers. It is, therefore, understandable that, within the KtK, no initiative in support of the demand for additional sound and television programmes was taken, even when persons potentially interested in such developments were present in the Commission. Rather, a very cautious statement was made: The need for local sound and television programmes is not very pronounced, nor can it be forecast for the future with a sufficient degree of certainty. It should be noted that there seems to exist not so much the need for a larger number of programmes as the wish to have a more individual choice of programmes. At present, states the KtK, there is no pressing demand for a larger offer of television programmes, so it would not be correct to speak about an explicit demand which would justify the immediate

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establishment of a nation-wide broadband distribution system. However, as the further expansion of supply with broadcasts and other forms of telecommunication via broadband distribution networks with a return channel appears positively from a social point of view, the KtK states that complete idleness should not be advocated either. Thus pilot projects (prototype experiments) using broadband cable systems are recommended for the time being. These projects should be carried out to test alternative forms of telecommunication and their technical variants; in addition, alternative forms of organisation as regards responsibility for broadband distribution networks should be tested. The German Federal Post Office, local authorities (or their enterprises) and private enterprises are proposed as entities responsible for the networks, each of which should establish and operate the network of at least one pilot project. The German Federal Post Office may impose conditions when issuing licences. The separation between responsibility for the network and responsibility for the information contents (in particular programmes) which is a prominent feature of present telecommunication systems in the Federal Republic of Germany should be maintained in principle, so that the provision of access to the network must not be left to the operator of the network. This is also proposed for pilot projects. As far as the information contents (in particular programmes) are concerned, it is suggested that the arrangements for experiments within the framework of the pilot projects be as varied as possible, so that the acceptability and attractiveness of the use of broadband distribution networks can be tested. The KtK points out that, for this purpose, a decision on the part of the legally responsible federal states is indispensable as far as broadcasts are concerned.

To get an idea of the investment requirements for a pilot project, the KtK gives the following example: Investments of about DM 10 million would make possible a broadband distribution network without a return channel in an urban district of about 12,000 inhabitants. For a network with a return channel, about DM 40 million would be required. Given a maximum penetration rate, for instance, of 60% of all households of the urban district, achievable within a period of fifteen years at decreasing growth rates, an initial charge of about DM 400 plus a monthly charge of about DM 14 would be required for a network (without a return channel) to reach the break-even point at the end of the fifteen years' period. Operating costs are not included in these amounts.

Opinion among the Commission members was divided on the issue of how to set up such pilot projects: One group of members wished to promote the innovation process by allowing different entities responsible for the network to compete with each other, thus making it possible to find the most economic form of organisation. A point in favour of the inclusion of private and municipal entities was also the fact that these entities initiated the

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establishment and operation of broadband distribution networks in the form of communal aerial television systems. In contrast to this, the other group gave priority to public responsibility for the infrastructure, the safeguarding of neutrality of the network and the comparability of the pilot projects, which would mean that the German Federal Post Office would have exclusive responsibility for the establishment and operation of the pilot networks. As the Commission voted in favour of the first opinion by a majority of 15 to 2 votes, the proposed pilot projects are basically intended to resolve open questions relating to demand, the different possibilities of meeting it by traditional and new information contents, the acceptance and the intensity of use by the subscribers, as well as their willingness to pay for investment expenditure and costs incurred for continuously rendered services. Also, technical alternatives, in particular as far as the design of the return channel is concerned, are to be tested.

The KtK recommendations regarding pilot projects will be referred to under para. 3.2 of this paper.

2.4. Forms of telecommunication with switched broadband networks

The findings and recommendations of the KtK on this subject were awaited with particular eagerness. In the public discussion on the future of broadband communication, it had frequently been maintained that a broadband distribution network could constitute a preliminary phase of a switched network. It had been expected that a distribution network would be easier to finance and to set up and that the twenty million television homes in the Federal Republic of Germany, stimulated by the offer of additional television programmes of an entertaining and informative nature, would find the capital and running costs from their budgets for entertainment and relaxation. On the basis of the willingness to spend for that purpose, it should be possible - it was assumed - to finance the complete conversion to a switched broadband network.

The KtK examined that hypothesis and concluded that it was illusary . Of course, such an integrated network would make it possible to combine all the communication services known today, but, on the other hand, it must be emphasised that, with the exception of the transmission of moving pictures, all the other forms of switched telecommunication, in existence today or conceivable for the future, can in principle be implemented by means of the existing dial telecommunication networks. The KtK has so far not found any evidence of a need for additional broadband dialogue communication in the form of

- picture telephone,
- picture-telephone conferences, or
- retrieval of moving pictures.

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The KtK has calculated that, if all fifteen million telephone subscribers in West Germany were to be provided with picture-telephone connections, an investment of between DM 100,000 million and DM 300,000 million, according to the demands on standards and quality, would be required. For the equipment of each subscriber with an installation for a 6-MHz colour picture of broadcast-television quality, an investment of between DM 29,700 and 35,100 would be needed; for monochrome reproduction, the corresponding figure would be about DM 15,000. No serious demand from private households could be ascertained. On the other hand, the KtK is certainly of the opinion that in local communities (for example, for road-traffic supervision) and in the field of business communication (within firms and administrations), limited broadband dialogue networks will be introduced. The introduction of a general public picture-telephone service, according to the KtK, cannot yet be justified on account of the high financial investment required and in view of the fact that there is no pronounced demand for it. Research, development and testing of new technologies for the transmission and switching of broadband signals - including the required terminal equipment - should be promoted intensively.

Although the KtK emphasises in several places in its report that it does not regard it as its task to compare special forms of communication with one another and to derive therefrom decisions regarding priorities, and in view of the fact that, between the distributed and switched services there is no "either/or" alternative, but rather a social, economic and political need for both categories, the KtK has not avoided giving a final evaluation of its findings which may be briefly summarised as follows:

- Seen from the point of view of the private households, the most complete possible telephone coverage is the primary objective. It is the basis of all future forms of telecommunication.

- Private as well as socially, complete coverage with sound and television broadcasting is of great importance. The KtK thinks that the question, whether more and different programmes should be offered, needs clarification.

- Seen from the point of view of industry and public administration, the new forms of telecommunication typewriter service and facsimile service have priority. The necessary measures have already been introduced for the further development of data-communication facilities.

- However, the KtK also points out the importance of research and development in the complex field of technological-sociological-economic matters, which are concerned here. It emphasises that an attitude favourable to innovation is needed and that the findings set out in the KtK report can be taken as a basis for decisions only when the facts, alternatives and target criteria, which were determined for 1975, have been brought up to date.

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3. Accounts and response

After the KtK had submitted its report to the Federal government and to the public on 27 January 1976, there followed a brief phase of public attention and discussion in the press and in the sound and television programmes. It soon appeared, however, that the questions with which the KtK had dealt, were not suitable for general public controversy. In view of the realistic analysis of the situation in the field of telecommunication, an analysis which dispelled the illusions and dampened the euphoria, there remained little else to do for those interested in the different fields, but to make their positions clearer and then to wait and see. That observation must, however, in no way give rise to the conclusion that - not only as regards the KtK report, but also in the matter itself - there exist no profound fdifferences of opinion regarding the future course of events. The fact alone that at the present time, there is no evidence of any appreciable need for additional telecommunication services - and in particular no unsatisfied demand for more mass communication - has led those industries which are interested in further innovation, to concentrate on those areas in which reasonable relations between investments and profits can be expected with a sufficient degree of certainty. These are described in more detail under para. 3.5. The next chapter is given over to discussing the reactions to the KtK report in the various interested circles.

3.1. Federal authorities

The federal government, on whose initiative the KtK was set up in 1973, dealt with the Commission's report in its Cabinet meeting on 14 July 1976, and issued an opinion on the KtK's report, drawn up under the responsibility of the Federal Minister for Posts and Telecommunication and entitled "Vorstellungen der Bundesregierung zum weiteren Ausbau des technischen Kommunikations-systems"(1). In its introduction, the socio-political premises are mentioned once more:

- The extension of the possibilities for individual communication by means of technical facilities, in particular of telephon , could contribute to maintaining human contacts in a changing industrial enterprise and counteract the impoverishment of human relationships.

- For old and sick people and others living outside the town centres, the possibility of access to certain information or services could in some cases be made feasible for the first time.

- Technically switched communication, on the other hand, could also cause direct and personal forms of communication to be replaced by more impersonal forms.

(1) Views of the Federal Government for the further extension of the technical communication system.

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- The possibility exists that, on the one hand, the boundary between individual and mass communication, which is today relatively inflexible, would be removed to a certain extent and, on the other hand, that the contents offered would be augmented and also related more closely to the specific interests of groups.

- The utilisation of modern communication techniques in industry and administration would have its effects on the labour market, and this must be recognised in good time.

The federal government went on to emphasise a number of the findings of the KtK and adopted to a large extent the Commission's recommendations regarding the development of telephone and teleprinting, as well as that of data transmission. As regards the field of broadcasting, the federal government drew attention to two problems:

- The KtK recommends the development of wired-television installations having a capacity of 30 television channels, so that, in addition to the sound and television broadcast programmes already in existence, further programmes and other services could also be distributed. On the other hand, the federal government points out that numerous existing communal-aerial installations - which, according to the wishes of the KtK, are to be regarded as elements of a future integrated network - have so far been designed for only a smaller number of channels. The requirement that integration of the communal-aerial installations in a general cable network should be possible, would give rise to additional costs which would have to be met by the users of the installations as an advance payment for a system for which is is not yet certain whether the capacity demanded would ever really be used. It is understandable - states the federal government - that this could not be achieved without opposition. The government, therefore, finds itself in the difficult position of having to decide whether, in authorising communal-aerial installations, it should give priority to probable economic advantages over the individual interests of the manufacturers of communal-aerial equipment. In order to avoid unsound economic investments, it therefore urgently requires a clarification of the need situation.

- Regarding the different methods proposed for electronic or facsimile text transmission, the federal government takes up a carefully considered attitude. As regards facsimile' that is to say, signals transmitted in digital form over telephone or teleprinter networks, which produce at the

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receiving end an authentic (facsimile) reconstitution of the original picture, the government points out that the technical conditions for this exist, the difficulties being due merely to international standardisation. Whether such a telephone service would prove itself on a larger scale, beyond special applications, would depend not least on whether the terminal equipment would be universally utilisable in offices, that is to say, for example, as copying and as facsimile facilities. The possibility of transmitted pages of newspapers or entire newspapers in facsimile to the readers, is not mentioned by the federal government.

The government points out, however, that two systems are available, in the form of Videotext and Viewdata, which - using normal domestic television receivers for reproduction - already make possible interesting forms of utilisation. If it be assumed that a Videotext magasine comprises 100 pages (each of twenty-four lines having forty characters per line), it would be possible to broadcast, over the first and second television programmes, a Videotext magasine throughout the Federal Republic and, over each of the third television programmes, an additional Videotext magasine on a regional basis. If the Videotext signals were not fed to the individual transmitting stations at the same time as the television programme then being broadcast, but added to the television signals only at the transmitter, separately from the television programme, it would be possible to distribute a total of some 250 Videotext magasines throughout the Federal Republic. However, because the sites of the individual television transmitters were chosen from different points of view from those required for the distribution of information by way of Videotext, the federal government is of the opinion that Videotext is suitable in the first place for the distribution of texts of general interest. These would be, in the first place, supraregional and not local texts which would, therefore, be of less interest to the local and regional daily newspapers. A different story is that of the so-called Viewdata systems. Here it may be imagined that, because of distribution over the very widely branched public telephone network, regionalisation of the contents of Viewdata texts and access would be possible down to groups of some ten thousand subscribers and that this would even be indispensable on system-technical grounds. In the view of the federal government, Viewdata could, therefore, represent an interesting basis for a telecommunication and information system which would open up access to contents with strictly local or individual interests up to specialist information which is important only on the federal level. This could result in possibilities of access and utilisation by the press.

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In conclusion of its opinion regarding the KtK report, the federal government pointed out that, in the further extension of the technical communication system, it is not merely a question of routing considerable financial means to investment in technical innovations, any more than it is a matter also, and to a much greater extent, of routing those means to the conservation and improvement of a multiplicity of opinion and of freedom of information in the Federal Republic of Germany. The independence of the journalistic media from the state or from business groups and the multiplicity of opinion should not only be conserved without restriction, but should even be reinforced. In this it is assumed that the hournalistic and industrial equilibrium between the public broadcasting and the press founded on private enterprise will be retained also in the future, and that the press will be given the possibility, in the interest of unimpaired functioning, of sharing in the technical innovations in a manner specific to the press. In other words: the press is not to be given access to sound and television broadcasting. It must, however, be allowed to benefit from the possibility of using also the new technical facilities for distributing news and information (including announcements and advertising).

The federal government is aware of the fact that, in the sphere of the media-political effects of telecommunication, the states will be particularly affected by virtue of their statutory powers. Because of the interdependencies existing between the individual media and the various forms of communication, it is not possible to consider the problems in isolation, but they can be given appropriate consideration only in a wider context. For that reason, the federal government takes up the proposal, submitted to the federal government by the prime ministers of the federal states on 4 June 1976, to the effect that discussions should take place between the Federal Republic and the individual states on the subject of the matters brought up by the KtK report.

3.2. Authorities of the federal states

In its judgement of 28 February 1961, mentioned in the beginning, the Federal Constitutional Court did not specifically define the term "broadcasting". It did, however, make a number of statements which are of importance in this connection:

Broadcasting is one of the indispensable modern mass-communication facilities which influence public opinion and which engender that public opinion, it is more than merely a "medium" for forming public opinion; it is an "eminent factor" of the formation of public

*/ of determining the priorities, to the detriment of other possibilities of expansion, but that it is a matter ./.

opinion. The participation in the formation of that opinion is not restricted only to current affairs broadcasts, because opinions are formed also by broadcast drama, musical programmes, and variety programmes, even by the scenic formation of the programmes. With the press, broadcasting is an at least equally important and indispensable modern means of mass communication. Nevertheless, there exists a decisive difference between the press and broadcasting in that, within the German Press, there are numerous independent publications in competition with each other according to their tendencies, their political views or idealogical conceptions, whereas, in the field of broadcasting, on technical grounds as well as in consideration of the great financial outlay involved in broadcast transmission, the number of carriers of such transmissions must remain relatively small. That special situation in the field of broadcasting requires special provisions for the implementation and maintenance of the freedom of broadcasting guaranteed in Article 5 of the Basic Law (of the Constitution of the Federal Republic of Germany). It may be surrendered neither to the state nor to any business group. There must be a guarantee that, in the establishment of programmes, all those interested in broadcasting participate in appropriate proportion. The judgement of 28 February 1961, states that, for the content of the overall programme, guiding principles which guarantee a minimum of balance of content, objectivity and mutual esteem, must be binding.

On the basis of these juridical definitions, it is now a matter or the states to make known their views regarding the pilot projects recommended by the KtK. According to the wishes of the KtK, the purpose of the projects is to be to test the acceptability of alternative forms of telecommunication and of their technical variants. Accordingly, when organising the projects, care must be taken that they make possible as large a measure of different programme offers as may be practicable.

Here, in the present discussion in the Federal Republic of Germany, two incompatible positions face each other:

Whereas the supporters of a liberalisation of broadcasting are in favour of regarding the existing juridical limitations as obsolete, because in their view the decisive argument of a lack of frequencies no longer applies and distribution by cable made possible the practically unlimited access of organisers of broadcast programmes, the supporters of a principle, which is directed toward equality of opportunity for all those interested, are of the opinion that there should continue to exist public organisers under whose aegis the different programme interests would be co-ordinated. That question, too, is of course, not to be regarded only from the point of view of broadcasting and telecommunication law, but also from that of politics.

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The discussions of the federal states regarding models for the future programme carrier policy for the pilot projects (and beyond this, of course, for wired television) have so far resulted in four variants:

- The existing public broadcasting organisations undertake the carrier function on the local or regional plan.

- New programme organising bodies, in which, however, public broadcasting organisations hold a majority interest, undertake the carrier function.

- Purely private undertakings become active; here, in addition to the model of the limited-liability company with an advisory council, in which all relevant groups of public life are represented, mention is made also of the model of the sponsored institution.

- In addition to the existing broadcasting organisations, further public carriers are created.

It is clear to everyone that, already in the juridical constitution of the pilot projects, important preliminary decisions for the future juridical forms could be taken. It therefore seems at present that the implementation of the pilot projects will take very much longer than is recommended and hoped by the KtK.

Nevertheless, the realisation is beginning to assert itself in the states that the juridical form of the public broadcasting organisation, which was especially created in the Federal Republic of Germany during the 1950s and 1960s, for the purpose of guarding the establishment of broadcasting services independent both of state influence and of pressure from interested parties, was in no way as bad as it was made out to be by its critics. That there is criticism of the broadcast programmes is a fact that can be discerned in every broadcasting system, whether it be mainly commercial or mainly state-influenced. It may, however, also be held that the public system (to vary the words of Winston Churchill on the parliamentary system) is the least bad of all conceivable systems, because at any rate, under the broadcasting legislation at present in force in the Federal Republic of Germany, many forms of recognition of private programme offers are possible. The gamut of those possibilities of integration ranges from the commissioned productions, which are at present practised on a considerable scale, and the presentation of external productions via an "open channel" for all groups, "insert programmes" and programmes with audience participation, to the conclusion of outline agreements for the continuous supply of programme items. This applies to the pilot programmes, as well as also to any future, permanent forms of programmes.

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There is also a necessity for the states to separate the broadcasting legislation governing sound and television activities from the legislation governing telecommunications. Although there exist initial attempts at definition in that respect, it must be admitted that the boundaries between broadcasting and telecommunication are still fluid in certain areas. This applies to the term "general public" to which a broadcast programme is directed, as distinct from the narrower and more precisely delimited circle of addressees of the communication under telecommunication legislation between two or more telephone or telex users. It concerns also the term "distribution", as it then applies to broadcasting when the technique connects several unconnected places (or rooms) with each other. And it concerns the term "programme", which applies only when an effect on the formation of public opinion is to be expected. For this purpose, the states have prepared a catalogue of various items, which defines for individual cases what broadcasting is and what it is not.

The following, for example, are not considered as broadcasting:

- the use of a video recorder with a display screen in a room of a discotheque;
- the transmission of the events on a horse-racing course by way of a television camera and screen within the grounds of the race-course;
- a television chair, for example, in the waiting hall of an airport, where generally only the user, by inserting a coin, views a cassette programme in progress at the time.

However, the following are regarded as broadcasting:

- the transmission of a hotel-owned programme throughout the entire hotel;
- a closed-circuit programme in passenger boats;
- publicity programmes by way of television screens in department stores, supermarkets and multiple stores;
- wired broadcasting in a block of flats, a housing estate or in an entire locality;
- wired broadcasting for several schools or hospitals in one urban area.

These are only a few examples taken from the catalogue, which will most certainly be extended and modified in the next few years, because the applicability of the various techniques for different programme, information and communication purposes is not yet at all clear.

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As regards the pilot projects, it is nevertheless known that the plans of the Federal Ministry for Research and Technology, together with the Federal Post Office, the Federal State of Hessen, the Hessische Rundfunk and the town of Kassel, to create a demonstration project for a colour-television distribution network with return channel, have been postponed for the time being, because resistance, mainly from the newspaper publishers, but also from the opposition party, the CDU, in the parliament of Hessen, seemed to indicate that the present time was not opportune for starting such a project. Nevertheless, the Kassel project would have been very suitable for proving the always reiterated, but never proved, suitability of wired television as a medium for local communication and integration. It had been intended to install cables in a segment of the town of Kassel, extending from the residential areas in the centre of the town, with a considerable proportion of business premises, to the rural dormitory areas. In this way, it would have been possible to interrelate the greatly different work, living and leisure habits of an urban population as regards the utilisation of the new technical medium. It was hoped, in particular, to obtain information about:

- the forms of programme and communication for which there is a need among the public;

- the effects of new forms of programme and communication on the social attitude of the users and on the local infrastructure;

- the new forms of programme and communication which could be implemented on an economically viable basis;

- the technical and operational consequences which would result for the construction of such broadband communication networks.

It was, however, very soon evident that little support for such a project, which was related to the concrete local situation, could be expected from the circles of newspaper publishers and the political parties close to them. It is obvious that those interested parties are interested in access to broadcasting not primarily on the plane of local co-carriers, but supraregionally and even nationally.

On the other hand, the federal states are concerned to improve the broadcasting coverage as a whole by means of the pilot projects. Thus, one can understand the proposition of the state of Baden-Württemberg to include rural communities in the sphere of the pilot projects, in order to help to discover in what way the cable can serve to bring the remote rural communities closer to the sources of information and culture of the more densely populated centres. In such cases, wired broadcasting could help to compensate the town/country disequilibrium and at least partly to correct the socio-cultural disadvantages of the rural inhabitants.

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3.3. Broadcasting organisations

Immediately after the publication of the KtK report, the ARD (Arbeitsgemeinschaft der öffentlich-rechtlichen Rundfunkanstalten der Bundesrepublik Deutschland)(1) and the ZDF (Zweites Deutsches Fernsehen)(2) issued a joint statement in which they welcomed the report as a valuable contribution to the objectivation of the media policy. In its meticulousness, it was suitable for putting any too euphoristic expectations of progress back on to a socio-politically desirable and economically justifiable plane. The broadcasting organisations declared themselves to be prepared to take over the tasks vested in them under the broadcasting constitution and accordingly also be available for the further planning, in particular for the pilot projects recommended by the KtK. The ARD and ZDF welcomed the fact that the KtK had refrained from making a recommendation for the basic modification of the regulation of the media and had based itself consciously on the present juridical situation. In fact, the telephone and broadcasting legislation at present in force was adequate for carrying out the necessary model experiments as conceived by the KtK and for offering for pilot distribution networks a convenient multiplicity of communication contents and organisational structures. The broadcasting organisations, moreover, supported the urgent recommendation of the report to give priority to guaranteeing the full coverage of the population with the existing television programmes and to utilise above all wire-distribution networks also for the purpose.

In supplement to those initial views, the Juridical Commission of the ARD and ZDF worked out a position having a more forward-looking point of view regarding the individual juridical and organisational questions of pilot projects, in which it was first of all stated unequivocally that the pilot projects for wired television were forms of broadcasting services which, according to the definition in force, were subject both to the notion of broadcasting and to that of the radio distribution of broadcast programmes. That the Federal States were alone competent to regulate all forms of organisation for wired television followed logically therefrom. At the same time, this confirmed the competence of the public broadcasting organisations, and that as long as the legislator did not enact any exception from their exclusive competence. Even if pilot projects were to be implemented only for a limited period of time, their carriers would have to guarantee to maintain the principles laid down by the Federal Consititutional Court for the protection of the freedom of broadcasting.

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(1) Association of public broadcasting organisations

(2) Second German Television.

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The existing public broadcasting organisations consider themselves to be suitable carriers for the pilot projects, not only in view of their comprehensive mandate for the broadcast coverage of the population (which includes also the regional and local spheres), but also because of their personnel and programme resources and their technical expertise. At the same time, within the framework of the programmes, an existing broadcasting organisation could guarantee an appropriate protection of the justified economic and journalistic interests of the other mass media, in particular of the local and regional daily papers; because any acceptance of publicity in the programmes of the wired-television pilot projects forcibly brings up serious questions regarding the economic strength of the local and regional press. In the interest of the maintenance of the existing structure of the press and the safeguarding of the balance between the electronic and the printed media, publicity inserts should, therefore - in the views of the ARD and ZDF - be avoided from the start.

The participation of the publishers in the pilot projects of the broadcasting organisations - within the ultimate competence of the broadcasting organs prescribed by law - is possible in many forms. Their juridical and organisational structure will depend on the intensity of the co-operation planned between broadcasting and press. A possible suitable form is the conclusion of an outline agreement between the competent broadcasting organisation and the other participants, regulating the details of the programme co-operation. Local groups, too, could - within the broadcasting legislation in force - co-operate in many ways. The present structure of broadcasting would, moreover, guarantee that the nature of the programme would not be determined unilaterally by individual groups.

From the point of view of the broadcasting organisations, the following programmes suggest themselves for the wired-television pilot projects:

- All broadcast television and sound programmes of the broadcasting organisations in the Federal Republic that can be received by radio at the place in question.

- Additional Third Television Programmes which cannot be received at the place in question by radio or only at the expense of a considerable outlay on aerials. (There is, in the Federal Republic, in addition to the ARD common television programme and the ZDF, a total of five "Third Programmes" broadcast regionally).

- A special repeat programme from the television programmes of the broadcasting organisations, especially arranged for the pilot project.

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- A broad offer of sound programmes of the broadcasting organisations in the Federal Republic, that cannot be received by radio at the place in question or only at the expense of a large outlay on aerials.

- A special local wired-television programme for the pilot project.

- German-language television programmes, perhaps also foreign-language television programmes, made available by foreign broadcasting organisations.

- Foreign sound broadcast programmes made available correspondingly.

The ARD and ZDF draw attention to the fact that the distribution of those programmes raises extensive questions of copyright, which can be solved in part by the broadcasting organisations exclusively, and in any case, much more easily by the existing than by new organisations.

With those statements, the ARD and ZDF are thus pursuing a line which they had already adopted in the beginning of the 1970s. The broadcasting organisations are, of course, interested in keeping the great measure of internal and external independence which is guaranteed to them by the monopoly, or rather, oligopoly situation of the ARD and ZDF as the sole public organisers of broadcast programmes. This does not preclude all competition for success with the listeners and viewers. Such competition does, however, not take place under the ruinous conditions of private-commercial broadcasting systems aiming only at the maximum profits. The broadcasting organisations in the Federal Republic of Germany object to partial privatisation and commercialisation of the broadcasting system, and it looks as if they had allies with good arguments in politics and business, science and journalism, and above all in jurisprudence. The ARD and ZDF have declared themselves quite open to new forms of co-operation in programme production. There have for a long time existed in the Federal Republic examples for such co-operation, which can be activated and augmented:

- The broadcasting organisations broadcast in their sound programmes not only a comparatively large proportion of recordings made by the private disc industry, but they work to an increasing degree together with the dis. industry also in the musical productions of their own symphony, variety and dance orchestras.

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- Considerable parts of the television programmes of the ARD and ZDF are produced by private television production firms, which produce either on behalf of the broadcasting organisations or which offer their freely financed productions for purchase by the organisations.

- In the framework of film promotion, the television service finances appreciable parts of cinema films which are first of all shown in the cinemas for some time and only thereafter are released for television.

- Several broadcasting organisations exploit, via subsidiary companies, film studio and production businesses, which in turn work in close co-operation with private production firms or which themselves are active in the private economic sector, such as, for example, the "Studio Hamburg Atelierbetriebsgesellschaft mbH" at Hamburg, the "Bavaria Atelier Gesellschaft mbH at Munich and the "Taunus Film GmbH" at Wiesbaden.

It may be expected, for the future, that this domain of co-operation between broadcasting organisations and private production firms will be further extended, because in that way, on the one hand, interested parties outside with ideas and capital are given access to programme production, and, on the other hand, the ultimate public responsibility of the existing broadcasting organisations is retained undiminished.

3. Political parties, churches and other public bodies

It is evident that - as everywhere - the question of the juridical structure of broadcasting in the Federal Republic of Germany, too, has to be decided on a political basis. For that reason, the points of view of the political parties regarding the KtK report are of particular importance.

The Christlich-Demokratische Union (CDU) and the Christlich-Soziale Union (CSU) confirmed to the KtK that it had accomplished a very useful task; it was to be welcomed that the KtK recommended a methodical, organic, requirement-orientated development of the telecommunication system of the future. What would, however, still have to be investigated, was the KtK's statement that the need for local sound and television programmes was not very marked. The same applied to the statement that there did not exist an acutely urgent need for a larger number of television programmes. It would be a matter for the market to decide the question of need. The CDU and CSU are in favour of the pilot projects, but they are against a Post Office monopoly of the network, which would enable the state to exert a strong political influence on the media, which would be more than doubtful from the point of view of the constitutional guarantee of freedom of communication. All those participating as organisers of programmes in the pilot projects must enjoy a guarantee of equal

chances of competitiveness. On no account should the organisation of the programmes and the responsibility for the programmes be reserved exclusively for the existing broadcasting organisations; the experimental phase should be open also to private persons, with equal opportunities. It should be the aim of those experiments to utilise new technical facilities, in order to introduce a greater degree of freedom in communication in our country.

On the other hand, the Sozialdemokratische Partei Deutschlands (SPD) declares, in a statement by Wilhelm Dröscher, a member of its governing body, that the public system of broadcasting organisations had proved itself in a remarkable manner in the Federal Republic of Germany. It would, therefore, appear to be justified to note that the participation of those organisations cannot be dispensed with, and even that they should play a dominant role. The SPD could not imagine that this important sphere should come under the influence of the large Press concerns of the private sector. It would, however, be possible to test in the pilot projects how the interaction of the public carriers with other journalistic elements could be creatively developed in this field and how, especially in view of the tendency toward regional newspaper monopolies, the new medium could contribute to a widening of the supply of information. The fact that the CDU/CSU were again in favour of privatisation, indicated that considerable interests of the pertinent industry and in particular of advertising, were at issue. Mr Dröscher confirmed that the KtK's Report helped to further media policy in a difficult field.

The Social-Democratic educational politician, Johannes Rau, Minister for Science and Research in the State of Nordrhein-Westfalen, added another aspect: An investigation should be undertaken within the framework of the pilot projects, in order to determine the socially important areas in which there existed appropriate possibilities of utilising broadband communication; one should, in particular, think of the educational sector in that context.

The KtK Report was favourable received also by the Freie Demokratische Partei (FDP), the Chairman of whose Media Committee, Gerhard Baum, pointed out that the introduction of new communication techniques should, in the first place, improve the freedom of opinion and multiplicity of opinion and should not lead to an impairment of the functioning capability of the Press. This applied, above all, to experiments in the direction of local and regional reporting. The FDP drew particular attention to the utilisation of telecommunications for an administration close to the public and transparent to the public. The FDP thanked the KtK for having examined for each case, in the findings and recommendations, also the possible costs and for having submitted cost-related proposals.

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From the sphere of the Catholic Church, there are so far two points of view regarding the KtK Report. The administrative committee of the Zentralkomitee der deutschen Katholiken(1) issued, on 2 July 1976, an opinion wherein it is stated that the technically possible should not be in the foreground of the pilot projects, but rather the question as to what contribution the new facilities of wired communication can make toward a free and meaningful co-existence at the neighbourhood level. Different and new forms of the programme carrier function should be included in the experiment. For the Catholic Church, an assured participation in the pilot projects would have to be allowed. The new possibilities should be capable of being tried out for the pastoral task of the Church. It was here not so much a matter of programme perfection, but rather that the people could regard the medium as a means for help with their every-day problems. On 20 September 1976, the Deutsche Bischofskonferenz(2) in its report published the requirement that the Catholic Church should be included in the planning phase of the so-called pilot projects. Even if one based oneself on the fact that the Catholic Church alone would not have to exploit a local or regional channel and fill the programme time entailed thereby, it was to be assumed that a deanery (in a diocese) could provide at least three to four hours of religious programmes per week. It would be possible also to include therein programme items produced centrally, but the true objective of this local television and sound programme would be information about local and regional religious events and happenings.

The chamber for public communications of the Evangelische Kirche in Deutschland (EKD)(3) pronounced itself, on 8 March 1976, regarding the report of the KtK by stating that its target was the greatest possible equity in communication, by which the freedom of information was safeguarded for everyone. In the further expansion of the media, no single groups or persons should be privileged; this applied in particular as regards the possibility of access to the individual media. In order to attain that target, it was not sufficient to hope for the free inter-play of the tendencies. Experience had shown that this favoured in journalism the enforcement of political and economic interests. Rather, a communication policy in the sense of social policy should be pursued, to which the KtK report was an important contribution. However, the findings and recommendations were restricted too much to technical and economic questions. The significance of decisions of communication policy as regards the co-existence of people had not been fully recognised in the report. Communication policy should be more than the promotion of the economy. Reasonable measures of political economy were not necessarily identical with socio-politically desirable

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(1) Central committee of German Catholics

(2) German Conference of Bishops

(3) Evangelical Church in Germany

developments. From those points of view, one could criticise that KtK for not making sufficiently clear its idea of the social target for the extension of the means of communication. The human needs regarding communication were insufficently defined. For that reason, anthropological and social questions and data should be made the starting point for the further development and for the individual decisions.

As regards the model experiment, the Evangelical Church is unequivocally in favour of the public form of organisation, although it does not palliate the weaknesses occurring in practice: This form of organisation excluded state broadcasting, but not party-political broadcasting. Moreover, the financial dependence on receipts from publicity could have an effect on the structures, contents and quality of the programmes, in the sense of an insidious commercialisation. Nevertheless, the public system ensured that freedom of opinion did not get lost in the conflict of individual interests, and made it possible for minorities, too, to have access to the programmes.

The trade unions and professional associations of journalists, too, had made their views known, which were clearly in favour of the existing form of organisation of broadcasting. The Deutsche Journalisten-Verband(1), on 12 December 1975, already stated itself to be against wired television in private hands. The public form of organisation was better suited than any other to prevent one-sided political or private influences on the programmes. A suitable participation of the press in programme production was quite possible within the framework of the public carrier system. Because the local press was indispensable for the information of the public (and also not replaceable by the electronic media), it should not be endangered by further television programmes; that would be the case, if local wired television were to be financed by local advertising. In the view of the association of journalists, a point in favour of the need for pilot projects was also the possibility of creating new employment and of trying out co-determination models for journalists.

The Deutsche Gewerkschaftsbund(2) declares itself in favour of pilot projects for testing the conditions therefor and for determining what need for further broadcast programmes would have to be expected. Otherwise, only the public system guaranteed really independent information and reporting. The DGB welcomes the KtK report as the necessary factual initial basis for a reasonable and socially desirable development of telecommunication.

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(1) Association of German Journalists

(2) German Federation of Trade-Unions

3.5 Public institutions and business groups claiming access to and/or making use of the system

In addition to the possible utilisation already mentioned of the telecommunication system in the fields of

- mass communication (mainly sound and television broadcasting)
- individual communication (mainly telephone and telex),

further fields of application are opened up in public administration and in the internal communication traffic of business undertakings. These are briefly outlined below.

In the field of the local communities, from the large town to the rural community, the opportunity of a "citizen-orientated administration" could result from a further development of the telecommunication system. Wherever more and more administrative functions are rationalised ever more intensively (for example, by the central storing and processing of data), there inevitably results for the individual member of the public an ever-increasingdistance to the administrative offices (Registrar's Office, Police Station, Social Welfare Office, Motor Vehicle Office, Revenue Office) with which he has from time to time to come into contact. Frequently, a long journey from the home to the administrative offices and corresponding waiting times must be accepted. Not infrequently, too, there is misunderstanding regarding the competence of the individual administrations. That state of affairs could be effectively remedied if an "external administrative office" were to be in close proximity to the home, which would obviate the individual member of the public having to go to the individual offices, because it would be, for him, competent for all administrative procedures. The locally competent offices and would be empowered to issue and to receive all documents, papers and declarations. The external office for its part would have access to all data stores of the different administrations, where it could deal with the interests of the individual. Such a model has been discussed in the KtK and approved. It, of course, assumes very strict data-protection regulations, in order to safeguard the protection of the private sphere of the individual. On the other hand, this requires investments of a personnel and material nature, which at present can hardly be met by the local communities. This model of "citizen-orientated administration" would doubtless have to be part of a pilot project and would not conflict with the idea of broadcasting. Another area in which the municipalities would like to become active, however, assumes the agreement with the broadcasting organisations: the conveyance of the cultural and educational programmes (theatres, libraries, adult education, scolastic education) by way of telecommunication systems directly into the homes of the inhabitants. These are doubtless broadcasting services where - as regards theatres and concerts - the question should also be posed as to whether, with such a mass-media conveyance, the undoubted publicity value is greater than the risk of causing any would-be theatre and concert goers to stay at home.

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Another possibility, favoured by the municipal authorities, would be to make public the meetings of the local council committees by way of a telecommunication system. In this connection, however, the criticism has been expressed that the communication conveyed by technical means could not replace the direct human contact, which is desirable on social grounds. The various parent organisations of the local communities (such as the Deutsche Städtetag(1), Deutscher Gemeindetag(2) etc) will in any case prove to be interested interlocutors in questions of the further development of the technical communication system.

The representatives of the education authorities were rather more reserved regarding the possibilities of wired television in particular and of telecommunication in general. In the middle 1960s, great hopes were generally still attached to the utilisation of television, sound broadcasting and books) in the field of education and further education. Plans for television study organised on a Federal plane (in collaboration by the A.R.D. and Z.D.F.) were discussed at length and finally implemented only in parts. In the meantime, the first "teleuniversity" was inaugurated in Nord-rhein-Westfalen; it restricts itself, however - unlike the British Open University - to the production and dispatch of audiovisually stored teaching programmes that are lent to the individual subscribers or groups of subscribers. It is to be noted that the models, still under discussion, for the utilisation of wired distribution for educational purposes are no longer based on the creation of central or regional institutions which systematically produce and dispatch programmes, but on the technical possibility of connecting a local production unit (that is to say, a school, university or adult-education institute) with participants in the same area (mainly groups, school classes etc). More ambitious ideas, however, appear everywhere to have been filed away.

On the other hand, the industrial manufacturers and users of telecommunication equipment are confident that there is a future in the growing mass of data that must be exchanged between and within firms, but possibly also in traffic between private persons and firms. It would seem that the most important and promising field of application of the new telecommunication system lies here. It is not so much the transmission of conventional sound and television broadcast programmes, but rather the utilisation arising from supply and demand for the purposes of

- the conveyance of information
- the conclusion of commercial transactions
- the intra-organisational conference system
- the supervision and remote control

that result here in valuable perspectives for the future. The basic

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(1) Association of German Town Councils

(2) Association of German Local Councils

consideration is the fact that

- the 20 million telephone stations (of which 13.2 million are main connections), and

- the 19 million television receivers

technically connected to one another, would produce a communication system fully usable for many of these possibilities for the purposes of industrial and business traffic. It will, therefore, be a matter for the telecommunication industry to develop such devices (and to propagate their utilisation) that enable any telephone subscriber who has a television receiver to connect the two instruments with one another to form a multiple-purpose communication terminal. The "Institut der deutschen Wirtschaft"(1) published a comprehensive study on the subject in the summer of 1976, wherein - in agreement with the declarations made by the Bundesverband der Deutschen Industrie(2) - first the requirement in principle for the construction and operation of the future communication networks on a private basis is put forward. For this purpose, a general plan was to be drawn up with the participation of the competent institutions, which plan would guarantee a systematic and continuous expansion. The price should be such as to be an incitement to voluntary joining; it should, however, not be overlooked that the actual incitement was to be found in additional programmes and services. The possibility should also be given (an maintained) for the undertakings participating in the networks to be able adequately to represent their points of view in basic matters of general economcy and in specific problems of the programme.

In connection with the consequent possibilities for industrial and commercial undertakings to have direct access to the households of telephone subscribers and owners of television receivers, one can understand the attitude of the advertising industry whose Arbeitskreis Werbefernsehen der deutschen Wirtschaft(3) demanded on 13 April 1976 to be directly included in the discussions on the pilot projects and to guarantee the access of advertising to the new telecommunication systems. In a free economic order, according to the Arbeitskreis Werbefernsehen der deutschen Wirtschaft, the unrestricted utilisation of all communication media should be open to advertising. A quota system of the programmes (as practised at present in television) was anathema to business principles. It applied in particular to wired television, where individual media should not be excepted from the principle of free access for advertising. Only the opening of wired television to advertising would offer the opportunity to small and medium firms to use television as an advertising medium. That would be an important contribution to the equality of opportunity in the economic order. The pilot projects, moreover, opened up new forms of advertising. However, the representatives of the advertising business, too, are of the opinion that as carriers for wired television only those organisations can be taken into consideration that offer sufficient guarantee that all socially relevant sectors can express themselves and that the freedom of reporting remains untouched. Advertising and editorial programme items are to be clearly separated. However, no mention is made of the possible negative effects on the printed media.

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(1) Institute of German Economy

(2) Federation of German Industry

(3) Publicity-television Working Party of German Business

On those effects even those concerned, that is to say, the publishers of newspapers, periodicals, books and other printed material are not in agreement. Since the stormy expansion of television during the course of the 1960s, the publishers have repeatedly pointed out that the competitive situation of the press vis-a-vis television had deteriorated very considerably for various (mainly fiscal) reasons and that an expansion of television advertising could have ruinous consequences for a number of publishers. As a consequence, the Bundesverband Deutscher Zeitungsverleger(1), in their statement published on 6 April 1976, demanded that newspaper publishers should participate in the pilot projects proposed by the KtK "under conditions of equal opportunity". The newspaper publishers based themselves on the fact that, if for its Kassel model the Hessische Rundfunk already requires financing from public funds, then that demand could also be made by the newspapers. Within the framework of the pilot projects, the daily newspapers should also be given the opportunity of trying out a screen newspaper on their own responsibility, because this was doubtless a form of activity for the press and not for broadcasting. The BDZV stressed in its declaration that the now impending changes in the communication system have not been brought about by the newspapers. The Kassel project confirmed that decisive initiatives had come from those politically interested. Through the advance of new electronic means of information, however, the interests of the daily newspapers in the journalistic, economic and technical respects were affected to a considerable extent.

The German newspaper publishers here face a, for them, almost insurmountable dilemma:

- on the one hand, they put forward, in a great majority, the view that the state should refrain as much as possible from planning and regulating intervention in the field of the structure and organisation of the mass media; consequently, they must therefore be in favour of opening up the access to broadcasting activities;

- on the other hand, they are quite aware that that access, once opened up, will benefit not only the publishers, but all kinds of interested parties, that is to say, also including those not connected with journalistic work.

For that reason, there is a relatively strong, but only rarely expressed, tendency to seek an arrangement with the public broadcasting organisations, whereby access to broadcasting would be granted to the publishers, but not to any other interested parties. Critics of that development, however, point out that the newspaper publishers' interest in broadcasting was far exceeded by that of the publishers of periodicals and books, as well as that of the theatre and the cinema industries. Here again it should be recalled that, thanks to their structure, the public broadcasting organisations are certainly in a position to enter into fruitful symbioses with other tendencies and groups in the media market. It will be a matter for the creative fantasy of the coming years to find solutions in this field, excluding nobody from access, while not endangering the precious balance between information, entertainment and education, which is at present an important feature of braodcasting in the Federal Republic of Germany.

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(1) Federation of German Newspaper Publishers.

4. Conclusion

The KtK report is here. It has in no way been recognised and discussed as yet in its full substance and importance. It offers valuable bases for the discussion of the facts and data of the new telecommunication services, and it indicates perspectives for their utilisation by the individual, society, industry and the state. It is of importance here that the report was drawn up on the basis of a broad consensus of professional opinion, as well as that of other interested persons. This makes it, in a certain way, an objective representation of the problem.

The next steps are only vaguely indicated:

- One thing that the KtK report could not manage, was the sociological clarification of the question regarding the need and the necessity for the various telecommunication services and their mutual interdependency.

  In this respect, further scientific research will be needed.

- The KtK report has refrained from assuming a definite political point of view; it has, however, pointed out that many statements made in the report are subject to political considerations.

  The political decisions which are put forward as a consequence of the KtK report or on the basis of its recommendations, must be carefully respected.

- The estimated costs quoted in the KtK report were worked out at a time when the economic crisis rendered doubtful all previous perspectives of development and prognoses. Economic revival or zero growth - it is obvious that that alternative must have a profound influence on the development of new telecommunication services.

  It will, therefore, be necessary to consider all prognostical indications of the KtK report with great caution.

As regards the communication policy, the Federal Republic of Germany, being a Federated State, faces a much more difficult situation than most of its neighbours. This is because, before it can take part in international projects and developments, it is necessary first of all to undertake internally (between the Federation and the individual states) very thorough and extensive discussions and agreements. This renders the participation of the Federal Republic in a pan-European communication policy difficult, but not impossible.

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